NCTA
NATIONAL CABLE & TELECOMMUNICATIONS ASSOCIATION

WILLIAM A. CHECK, PH.D. VICE PRESIDENT, SCIENCE AND TECHNOLOGY
1724 MASSACHUSETTS AVE N.W. WASHINGTON, D.C. 20036-1903
TEL: 202.775.3637 FAX: 202.775.3698

October 31, 2001

Ms. Magalie R. Salas
Secretary
Federal Communications Commission
445 12th Street S.W.
Washington, D.C. 20554

Re: Compatibility Between Cable Systems And Consumer Electronics Equipment PP Docket No. 00-67

Pursuant to the Commission's Report and Order ("R&O") in the above captioned proceeding, and on behalf of the National Cable & Telecommunications Association ("NCTA"), I am submitting the third progress report called for in the R&O.

On September 14, 2000, the Commission released its Report and Order in this proceeding to help resolve outstanding issues regarding the compatibility between cable television systems, digital television ("DTV") receivers and other consumer electronics equipment.[1] In the R&O, the Commission requested that the cable and consumer electronics industries report by October 31, 2000, and every six months thereafter until October 2002, on progress in implementing the February 22, 2000 agreements between the two industries.[2] Those agreements dealt with the technical requirements for direct connection of DTV receivers to digital cable systems and on the provision of tuning and program scheduling information to support the navigation functions of DTV receivers. The Commission also asked for information on efforts to develop standards for an "integrated bi-directional receiver." NCTA filed our last report on April 30, 2001, and is pleased to provide the following update on our efforts in these matters.[3]

[1] In the Matter of Compatibility Between Cable Systems and Consumer Electronics Equipment Report and Order, PP Docket No. 00-67, FCC 00-342, released September 15, 2000.

[2] The Commission subsequently changed the date for filing the first progress report to November 30, 2000; Erratum, PP Docket No. 00-67, released October 25, 2000.

[3] NCTA filed the first such report on November 30, 2000.

Bi-directional DTV Specification

In the R&O, the Commission established labels for three types of DTV receivers: (1) a unidirectional receiver capable of direct connection to a cable system; (2) a unidirectional receiver capable of direct connection to a cable system but that also includes a IEEE 1394 interface for the receipt of advanced and interactive services; and (3) a bi-directional receiver capable of direct connection to a cable system and of accessing interactive services using that direct connection. However, because specifications for an integrated bi-directional DTV receiver had not yet been finalized, the Commission ordered that the docket remain open and that the cable and consumer electronics industries provide periodic reports on the development of such specifications.

As we reported in our April 30, 2001 report, the *OpenCable Terminal Device CORE Functional Requirements for Bi-directional Cable* specification establishes the functional requirements for a DTV receiver capable of direct connection to, and operation on, a bi-directional cable system. The public release of this specification occurred on December 31, 2000. Consequently, manufacturers now have a hardware specification with which to build a bi-directional DTV receiver product that will be compatible with OpenCable architecture.[4]

NCTA/CEA Agreements

The cable industry has worked with the consumer electronics industry to develop a new feature for a DTV receiver which will allow the cable set-top box to be incorporated within the DTV receiver – so that no external cable set-top box is needed.[5] Toward this end, the NCTA and

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[4] Although not called for by the Commission's "Digital Cable Ready 3" DTV set requirements, this specification includes a requirement for a 1394/5C digital interface. Digital interfaces play a substantial role in resolving interoperability issues. The cable industry endorses the adoption of digital interfaces and associated copy protection in all digital television equipment.

[5] It is important to note that consumers with current generation DTV sets can receive broadcast digital program signals -- including high definition signals -- over their cable systems where cable companies and broadcasters have reached agreement for carriage of broadcast digital signals over the cable plant. In such cases, cable operators provide special "component analog" HD set-top boxes to subscribers.

Current generation DTV sets do not have copy-protected digital connectors (e.g., 1394/5C, DVI/HDCP); rather they use component analog connections which lack copy-protection technology. Therefore, in order for these DTV sets to receive HD programming delivered over the cable plant, MSOs have had to deploy the above-mentioned special HD set-top boxes with component analog connections, raising concerns among content providers about the transmission of unprotected signals. Once manufacturers include copy-protected digital connectors in DTV sets -- as NCTA has repeatedly urged be done -- set-top boxes with compatible copy-protected digital connectors can be used to provide high value broadcast (and cable) digital programming to cable subscribers. Copy-protected digital connectors are required by the OpenCable set-top box specifications.

Consumer Electronics Association ("CEA") reached voluntary agreements on February 22, 2000, which will allow consumer DTV sets to be connected directly to digital cable systems. The agreements detail the technical specifications that will enable these sets to work with digital cable systems.

After painstaking negotiations, CEA and NCTA agreed to the technical requirements that will allow consumer DTV sets to be connected directly to digital cable systems to provide features and functions specified in the agreement. In particular, the features agreed to by CEA and NCTA that will be provided by these types of DTV models, and specifically spelled out in the agreement, are:

- Analog television signals that are transmitted in the clear.
- Digital television programs that are transmitted in the clear.
- Using a Point of Deployment ("POD") replaceable security module supplied by a cable TV system operator, those scrambled digital television programs that can be authorized by one-way downstream data transmission to the POD module. These include subscription television programs and pay-per-view programs that are separately ordered by telephone.
- Data to support the navigation function in the receiver as defined in a separate "PSIP" agreement.

1. The Technical Agreement

The first agreement addressed the network interface specifications, and was submitted to the Society of Cable Telecommunications Engineers ("SCTE") for adoption as a cable industry standard. Following a comment resolution and re-balloting process, which included participation from both the cable industry and the consumer electronics industry, these network interface specifications were adopted by SCTE as a standard ("DVS/313") on April 4, 2001.[6] DVS/313 assures a cable customer who buys a DTV receiver built to that standard that the set will connect directly to a cable system. This standard is complete.

[6] DVS/313, *Digital Cable Network Interface Standard,* defines the characteristics and normative specifications for the network interface between a cable television system and commercially-available consumer equipment that is used to access multichannel video programming. The interface is also compatible with existing set-top terminal equipment deployed by cable operators and with terminal equipment developed using the OpenCable specifications.

In addition, NCTA would like to take this opportunity to report on the progress of two SCTE standards referred to by CEA as being "substantially related to implementation of the February 22 agreements."[7]

DVS/301 - POD Copy Protection

This standard defines the characteristics and normative specifications for the system that prevents unrestricted copying of high value content as it crosses the POD-Host interface. Content that is delivered unscrambled over cable systems is not subject to this standard. DVS/301r2 was released January 16, 2001, the ballot closed on March 30, 2001, and the ballot passed. This resulted in a modified document DVS/301r3, but because all of the comments were editorial in nature, the standard did not need to be re-balloted. This standard is complete. [8]

DVS/295 – Host - POD Interface

This standard defines the characteristics and normative specifications for the interface between the POD separate security modules owned and distributed by cable operators and OpenCable-compliant subscriber equipment, including set-top boxes and other consumer electronic devices ("host devices") that are used to access multichannel television programming carried on cable systems. DVS/295r4 was released for ballot July 30, 2001, the ballot closed on September 10, 2001, and the ballot passed. The SCTE is now following its established process to resolve comments received with the ballots so that the standard will be complete.

These standards documents are themselves based on CableLabs' OpenCable specifications for the Host-POD Interface and Host-POD Copy Protection that had been submitted to SCTE for standardization as discussed above. Beginning in October 1999, OpenCable publicly released these and other complete specifications for interactive and non-interactive host devices that can operate on bi-directional and unidirectional cable systems, respectively.

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[7] See Letter from Michael Petricone, Vice President, Technology Policy, Consumer Electronics Association, to Magalie Roman Salas, Secretary, FCC, PP Docket No. 00-67, May 3, 2001 ("CEA Status Report").

[8] The DVS/301r3 standard requires the use of patented Dynamic Feedback Algorithm Scrambling Technology ("DFAST") which is available to all manufacturers on a reasonable and non-discriminatory basis under license from CableLabs. Motorola and Scientific Atlanta have signed the CableLabs POD-Host Interface License Agreement ("PHILA") licensing the use of DFAST technology and CableLabs is engaged in negotiations over the PHILA with other manufacturers.

The OpenCable process through which these specifications were developed, reviewed, and refined has been an open and inclusive process, with participation by a broad spectrum of interests, including almost 400 private sector and governmental organizations. The list encompasses a wide range of organizations, including cable operators, traditional cable equipment manufacturers, consumer electronics manufacturers, retailers, content providers, computer manufacturers, software developers, satellite service providers, telecommunications equipment manufacturers and service providers, governmental agencies, research institutes, and trade associations. The only requirement for participation in this process is signing a non-disclosure agreement.

With the release of these specifications, manufacturers were able to build first generation OpenCable-compliant digital set-top boxes that would work with cable-operator supplied OpenCable-compliant POD modules.[9] Indeed, by July 1, 2000, Motorola and Scientific-Atlanta had built and manufactured POD modules that were delivered to cable operators. In addition, several consumer electronics manufacturers, including Panasonic, Philips, and Samsung, had made use of the specifications, and had supplied set-top boxes with POD interfaces to CableLabs for OpenCable interoperability testing.

In short, there are no technical barriers to a manufacturer building an "integrated DTV" model with the features described in the CEA/NCTA technical agreement. Even in the absence of final SCTE standards, the underlying specifications have been available to manufacturers for a significant period of time, and some manufacturers have already developed prototype receivers. Some of these DTV models were on display last January at the Consumer Electronics Show.

2. The PSIP Agreement

The second NCTA-CEA agreement reached in February 2000 detailed the requisite conditions necessary to carry, when available, Program and System Information Protocol ("PSIP") data on cable systems to support consumer digital receiving devices connected directly to the cable TV system.

The agreement focuses on the carriage of PSIP through the distribution chain and not its creation by program providers. As such, these carriage requirements assume the availability of

[9] These OpenCable specifications are the Set Top Terminal, Bi-directional Cable (CFR-OCS-BDC-INT06-010803), Set Top Terminal, Uni-directional Cable (CFR-OCS-UDC-INT02-000419), Terminal Device, Uni-directional Cable (CFR-OCT-UDC-INT03-010515), Terminal Device, Bi-directional Cable (CFR-OCT-BDC-INT02-010515), Cable Network Interface (SCTE DVS/313r5), Point of Deployment, Copy Protection (IS-POD-CP-INT05-010515), and the HOST-POD Interface (IS-POD-131-INT07-010803). They can be downloaded from http://www.opencable.com/specifications.html.

PSIP data from the content provider. To our knowledge, none of the implementation scenarios outlined in the agreement requires the development of additional technical specifications or standards, but they may require upgrade or replacement of existing equipment by individual cable operators or additional product development by product vendors.

MSOs are currently working closely with CableLabs and Triveni Digital, Inc., a leading manufacturer of PSIP-related products, to conduct tests to ensure the cable industry is prepared to support the carriage of PSIP information in accordance with each of the implementation scenarios outlined in the agreement. In addition, other equipment (e.g., receivers, encoders and remultiplexers) needed to simulate the carriage scenarios has been purchased by CableLabs, and several vendors have loaned CableLabs equipment in return for the opportunity to use CableLabs' unique facilities and expertise to help develop and refine their products for sale to the industry.

The testing in which Cablelabs is engaged is proceeding and NCTA will keep the Commission apprised as to its status. In addition, cable operators continue to work individually with their manufacturers to analyze specific product needs to implement the carriage of PSIP over cable systems consistent with this agreement.

Digital Connectors

Digital connectors play a substantial role in resolving interoperability issues.[10] Without digital connectors and associated copy protection technology, content providers will not provide high quality digital content to cable operators. In 1999, the cable industry called for the inclusion of the 1394/5C digital connector on all digital televisions and endorsed the "5C" copy protection technology. In June of this year, the cable industry, along with the satellite industry, endorsed another digital interface and copy protection technology referred to as "DVI/HDCP." These two digital connectors – the 1394/5C connector and the DVI/HDCP connector – complement each other in their capabilities and will help consumers make use of equipment in the digital age. The IEEE 1394/5C interface delivers video and audio in its compressed format and has emerged as the preferred tool to interconnect multiple audio/visual (A/V) devices on a common bus or network. The DVI/HDCP interface delivers video in an uncompressed format for transmission from a set-top box to television monitors for high-definition video content. The cable industry endorses the adoption of these connectors in digital television equipment.

[10] In this context, "connectors" means more than the physical size and shape of connectors. It includes electrical signal specifications plus a messaging protocol that allows the connected devices to exchange authentication and other information.

Commercial Availability of Navigation Devices

As discussed in the October 10, 2001 letter from NCTA's President, Robert Sachs, to Chairman Powell, cable operators have undertaken various measures to facilitate the retail availability of set-top boxes. As described above, CableLabs has developed specifications for the POD module as well as for the interface that a digital set-top box needs to accommodate the POD. Moreover, cable operators have purchased PODs to provide to customers who purchase digital set-top boxes or other host devices that require a POD to descramble scrambled signals.

CableLabs also developed the POD-Host Interface Licensing Agreement ("PHILA") to provide manufacturers with the necessary technology to make PODs work in host devices. Despite the cable industry's efforts, retailers have not placed orders for POD-enabled digital set-top boxes and a retail market has been slow to develop.[11]

Among the reasons retailers have given for not purchasing POD-enabled host devices is that such devices would not be technically identical to integrated digital set-top boxes deployed by cable operators, and that such devices may not be fully portable from one cable system to another, except where the systems use the same digital set-top boxes.[12]

On October 5, 2001, in a further effort to facilitate the retail availability of set-top boxes and address retailers' technical concerns, the NCTA Board of Directors agreed to take the following voluntary actions.

- Operators will encourage their set-top box suppliers (Scientific-Atlanta, Motorola, Pioneer, Sony, etc.) to make their digital set-top boxes -- the same boxes with embedded security the manufacturers supply to the cable operator -- available at retail starting as soon as possible.

- Operators will provision and support these boxes in their systems. (To prevent theft of service, operators may require customers to provide proof of purchase from a retailer and the manufacturer's set-top box serial number.)

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[11] See Response of the National Cable & Telecommunications Association to the Consumer Electronics Retailers Coalition Ex Parte Submission, CS Docket No. 97-80, filed September 21, 2001 at 3-8. See also Status Report filed by the National Cable Television Association, CS Docket No. 97-80, July 7, 2000.

[12] See Response of the Consumer Electronics Retailers Coalition to the July 7, 2000 Cable Industry Status Report, CS Docket No. 97-80, filed August 2, 2000 at 7, 15. It should be noted that set-top boxes built to the current OpenCable specifications are more portable than operator-supplied boxes because the former will provide scrambled and unscrambled digital video and audio (including pay-per-view service), as well as analog video and audio when used on any cable system supporting OpenCable compliant devices while current operator-supplied boxes can only be used in the system which provides that cable box to the customer.

- If a subscriber purchases one of these boxes at retail, and then moves outside of the operator's franchise area, the operator would buy back the box provided it is in good working condition, the operator is still leasing the same box in the franchise area, and the customer provides reasonable evidence that he or she is moving out of the franchise area. Although exact terms will be determined by individual operators, it is contemplated that buy-back would be based upon the operator's wholesale, depreciated cost.

- Manufacturers may make available to consumers some warranty period; and retailers may offer some optional extended maintenance period for the boxes. Individual operators may wish to offer maintenance of these boxes as well.

We believe this industry-wide initiative will promote the availability of digital set-top boxes at consumer electronics stores, providing customers with the option of purchasing rather than leasing digital set-top boxes.

OpenCable Application Platform

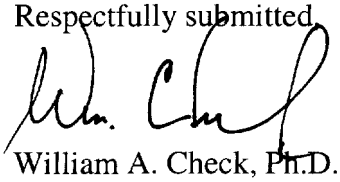
In addition to the industry-wide initiative for making integrated digital set-top boxes available at retail, the cable industry is working with dispatch to finish the OpenCable Application Platform ("OCAP") or "middleware" specification. This specification includes a set of Application Programming Interfaces ("APIs") designed to establish a road map for companies to create applications for services that operate seamlessly over broadband cable networks. By adding software interfaces to the existing OpenCable hardware platform, OCAP will enhance the portability of boxes that incorporate interactive functionality and provide consumer electronics manufacturers and retailers even greater ability to build set-top boxes or integrated DTV receivers capable of providing the same services available on set-tops provided by the cable operator.

Development of the OCAP specification is CableLabs' highest priority, and the cable industry has committed substantial resources to the OCAP middleware initiative. However, middleware specifications of this sort are very difficult to design and negotiate, given the multiple vendors and industries involved, who often have different and sometimes conflicting business objectives, as well as the complex technological and legal issues that must be resolved. It is a time-consuming and resource-intensive process to develop consensus specifications; obtain the participation of contributing vendor-authors; identify, secure, and address intellectual property rights ("IPR") (including the possibility of royalty-bearing IPR pools); and publish a specification. However, it is a process that is necessary in any specification-setting effort and that ultimately will benefit consumers. Efforts to coordinate with the ITU and other international standards development organizations further compound the complexity of the process. Despite

these challenges, CableLabs plans to release the OCAP specification within 90 days. The cable industry has supported and continues strongly to support the expeditious development of OCAP in order to promote greater portability in the design of retail products and applications used to access cable services.

In conclusion, as is evidenced in this Status Report, the cable industry remains committed to facilitating the digital transition and the commercial availability of navigation devices.

Respectfully submitted,



William A. Check, Ph.D.
Vice President, Science and Technology

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